EXECUTIVE SUMMARY

Hughes Missile Systems Company (HMSC) has retained Tetra Tech, Inc. to prepare a comprehensive "NIROP Site Investigation and Remediation Summary Report" of the Naval Industrial Reserve Ordnance Plant (NIROP) in Pomona, California to summarize past investigations and remedial activities at the currently inactive facility. On behalf of the Department of the Navy (Navy), and as the agent of General Dynamics Corporation (GD), HMSC has conducted various environmental site assessments, site investigations, and remedial activities at the NIROP Pomona facility since its purchase of the GD Missiles Division in August 1992. GD's and the Navy's site assessment efforts date back to the 1980s. The purpose of this report is to summarize these activities to facilitate agency oversight of closure.

Closure plans have been developed and submitted to the appropriate regulatory authorities and remedial activities completed for all identifed areas at NIROP. Only three soil removal actions are currently awaiting closure from DTSC. The Navy and HMSC propose to complete site closure with oversight from the Department of Toxic Substances Control (DTSC) by September 1996. The two objectives of this report are: (1) to provide a vehicle for regulatory review, verification and concurrence of the completeness of the remedial activities; and (2) to complement the accompanying "Post-Remediation Human Health and Ecological Risk Assessment."

The NIROP facility is located on property zoned exclusively for industrial uses and consists of approximately 160 acres located at 1675 West Mission Boulevard in Pomona, California. The site formerly contained approximately 45 manufacturing and non-manufacturing support buildings, which were constructed between 1951 and 1988. Several structures have been demolished within the last five years. GD operated the NIROP facility under a facilities use government contract between 1953 and August 1992. In August 1992, HMSC purchased GD's missile operations and began to phase out manufacturing operations at this facility, which was returned to Navy control on December 31, 1994.

HMSC's goal is to identify all areas of potential contamination and facilitate the Navy's resolution of any residual environmental concerns. Since 1988, extensive site investigations were conducted throughout the NIROP facility by various environmental firms. These include Tetra Tech, IT Corp., Naval Energy and Environmental Support Activity (NEESA), Law/Crandall, Jacobs Engineering, Dan Napier & Associates (DNA), Versar Inc., Dames & Moore, and Woodward-Clyde Consultants. As a result of the extensive assessment work, several areas of environmental concern were identified. These concerns initiated the performance of numerous subsurface soil investigations. Based on the results of these investigations, further corrective action was initiated as necessary. Table ES-1 summarizes the type of site-specific work conducted at the NIROP facility and the current environmental status of the buildings and surrounding open areas.

Table ES-1
Summary of Work Conducted and Current Status at the NIROP Facility

Building	Area	Work Conducted	Status
1	Administration	IE	NOI, NFA
2	Machine Shop - North	SSA, EXC, HRA	REM, HRA, NFA
	Machine Shop - South	SSA, EXC, HRA	REM, HRA, NFA
	Precision Machine Shop	SSA, HRA	BAL, NFA
	Experimental Machine/Tool Manufacturing (EMM)	SSA, EXC, HRA	REM, HRA, NFA
	Mechanical Assembly Room	SSA, EXC, HRA	REM, HRA, NFA
	Paint Shop	SSA, OSA, HRA	BAL, HRA, NFA
	Heat Treat - Degreaser Sump	SSA, OSA, HRA	BAL, HRA, NFA
	Heat Treat - Furnace Quench Sump	SSA, HRA	BAL, HRA, NFA
	Department 52	SSA, EXC, HRA	REM, HRA, NFA
	Plasma Desmear Area	SSA, EXC, HRA	REM, HRA, NFA
	Department 62 (Trenches/Sumps)	SSA, EXC, HRA	REM, HRA, NFA
	Wastewater Treatment Plant	SSA, EXC, HRA	REM, HRA, NFA
	South Side (Water Valves)	SSA, CL, HRA	BAL, NFA
	East Side - Chip Storage Area	SSA, EXC, HRA	BAL, REM, NFA
2A	Cooling Tower	SSA, OSA, CL	BAL, NFA
2B	Cooling Tower	IE, CL, SSA	NOI, NFA
3	Administration	IE	NOI, NFA
3A	Compressor and Air Conditioning	IE, CL	NOI, NFA
3B	Cooling Tower	IE, SSA, CL	NOI, NFA
4	Old Machine Shop	SSA, EXC, HRA	REM, HRA, NFA
	Former R&D Lab & Sump	SSA, EXC, HRA	REM, HRA, NFA
	Structural Test Lab	SSA, HRA	BAL, HRA, NFA
	Process Lab Area (Old Plating Shop)	SSA, EXC, HRA	BAL, REM, HRA, NFA
	Old Photo Shop	SSA, EXC, HRA	BAL, NFA
	Former Quench Tank	SSA, HRA	BAL, HRA, NFA
4A	Compressor & Air Conditioning	IE, CL	NOI, NFA
4B	Centrifuge Test Area	SSA, CL	REM, BAL, NFA
4C, 4D, 4E	NPTU Training	IE	NOI, NFA
4F	Cooling Tower	IE, SSA	NOI, NFA
4U	Manufacturing	IE	NOI, NFA
5	Asphalt Paving	SSA	BAL, NFA
	Old Paint Area	OSA	BAL, NFA

(continued)

LEGEND FOR TABLE ES-1	
WORK CONDUCTED	STATUS
IE = Environmental Impact Evaluation (Phase I Site Assessment)	NOI: No Impacts Identified
SSA = Soil Sampling and Analyses	BAL: Contamination either Non-Detectable or Below Action Levels
GSA = Groundwater Sampling and Analyses	REM: Remediated to Below Action Levels
OSA = Sampling and Analyses - Other	HRA: Residual Risks Characterized as Protective of Human Health and the Environment (under industrial conditions).
EXC = Remediation by Soil Excavation	RIP: Remediation in Progress, Potential Residual Risks Characterized as Protective of Human and the Environment (under industrial conditions
DEM = Remediation by Demolition	NFA: No Further Action Required
CL = Clean	
SVE = Soil Vapor Extraction	
HRA = Health Risk Assessment	

Table ES-1 (Continued)
Summary of Work Conducted and Current Status at the NIROP Facility

6	Plant Security	IE	NOI, NFA
7	Wash Rack /Service Bay Sump	SSA, HRA	BAL, HRA, NFA
	Four-Stage Clarifier	SSA, HRA	BAL, HRA, NFA
	Central Hydraulic Lift	SSA, EXC	REM, NFA
9	Yard	SSA	BAL, NFA
11	Scrap Metal Storage	SSA, HRA	BAL, HRA, NFA
12	Truck Scale	SSA	BAL, NFA
14/14A	Oil Stained Pavement	SSA, HRA	BAL, HRA. NFA
15	Areas A & B	SSA, EXC, HRA	REM, HRA. NFA
21	Storage Shed	IE	NOI, NFA
24	Storage Facility	IE	NOI, NFA
27	Navy Gage Warehouse	SSA, EXC, HRA	REM, HRA. NFA
28	Material Storage Area	IE	NOI, NFA
30	Sumps/Septic Tank & Leach Field	SSA, HRA	BAL, HRA. NFA
	Underground Chemical Holding Tanks	SSA	BAL, NFA
	Other Areas	OSA	BAL, NFA
31	Warehouse	IE	NOI, NFA
32	Warehouse	IE	NOI, NFA
33	Mfg Methods/Robotics	IE	NOI, NFA
34	Warehouse	IE	NOI, NFA
35	Oil Stained Asphalt	SSA	BAL, NFA
36	Warehouse & Plant Engineering	IE	NOI, NFA
37	Warehouse	IE	NOI, NFA
38	Oil Stains on Paving	SSA, EXC, DEM	REM, NFA
39	Oil Stains on Paving Area	SSA, EXC, DEM	REM, NFA
40	Oil Drums Storage Area	SSA, DEM	BAL, NFA
41	Oil Drums Storage Area	SSA, DEM	BAL, NFA
42	Antenna Range	SSA, HRA	BAL, HRA, NFA
43	Barrel Storage Warehouse	SSA, IE	NOI, NFA
45	Flammable Storage/DLMF Storage	IE	NOI, NFA
46	Container Storage	IE	NOI, NFA
48	Bulk Chemical Storage Area	SSA	BAL, NFA
	Western Storage Bay Drain	SSA,EXC,HRA	REM, HRA, NFA
301	Oil Stains on Concrete Floor	IE, CL	REM, NFA
	Septic Tanks	SSA	REM, NFA
W. of 6	Overpass	SSA, HRA	BAL, HRA, NFA
N. of 4	Pomona Recreational Area (PRA)	SSA, HRA	BAL, HRA, NFA
NE of 2	Salvage Yard (Metal Chip Area)	SSA, SVE, EXC	REM, NFA
NE of 2	Groundwater Monitoring	GSA, HRA	BAL, DEM. NFA
ALL	Underground Storage Tanks	CL, DEM	REM, NFA

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For the past three years, hundreds of soil and groundwater samples were collected throughout the facility, first under the supervision of the Regional Water Quality Control Board (RWQCB), and since late 1994 under the supervision of DTSC. Since 1994, DTSC has assumed lead regulatory agency responsibility for the oversight and evaluation of remedial actions conducted at the NIROP facility, and the RWQCB has supported DTSC's efforts for groundwater issues. Areas of potential residual soil contamination have been evaluated for more than 20 buildings and several support structures (e.g., wastewater treatment plant) at the facility where there is history of chemical usage or storage. Other buildings were evaluated in two Phase I site evaluations or excluded from subsurface testing because of historical practices in those buildings. Four monitoring wells were installed and several rounds of quarterly sampling conducted before those wells were recently abandoned with the concurrence of the RWQCB. The environmental site investigation and remediation activities are summarized in Table ES-2.

Remediation has primarily consisted of the excavation and off-site disposal of contaminated soil from beneath approximately six buildings (Buildings 2, 4, 7, 27, 38/39 and 48) and the former salvage yard northeast of Building 2. No hazardous waste was deposited or buried on-site for disposal purposes. All soil remediation activities conducted under the supervision of the RWQCB and DTSC successfully achieved the facility-specific cleanup goals of total recoverable petroleum hydrocarbon (TRPH) or total petroleum hydrocarbons (TPH) concentrations of less than 100 ppm or 1000 ppm, as appropriate, and non-detectable concentrations of volatile and semi-volatile organic compounds (VOCs and SVOCs) The cleanup goal of metals for these buildings were in general below the PRGs concentration (copper <2,000 ppm, chromium <80 ppm, hexavalent chormiun <5 ppm, nickel <80 ppm, and lead <30 ppm). All underground storage tanks have either been removed or closed. The RWQCB has determined that no further action is required for soil at Buildings 4, 7, 27, 38/39, 48, and portions of Building 2 (machine shop isolation pads). DTSC is currently reviewing previous agency dtermination and site assessment efforts.

Water samples from the groundwater monitoring wells on-site reveal concentrations of VOCs. Based on the data submitted, the RWQCB has concluded that the groundwater contamination may be a regional groundwater problem not originating from any NIROP source. The RWQCB has determined that no further action is required for the underlying groundwater at this time and has approved a request from HMSC to abandon the monitoring wells.

All remedial activities have been completed at those areas identified for further evaluation or action. Only three areas are awaiting final closure approval from DTSC (Building 2 consist of the former metal plating areas at Departments 52 and 62, the former wastewater treatment plant, and Building 48). Moreover, an additional round of DTSC-approved soil sampling was completed in July 1996 at various facility locations.

Table ES-2 Environmental Activities Summary

Date		Work Conducted	Work Area	Work Performed by	Lead Agency
May	1988	Removal of 12 Underground Storage Tanks	Various Locations in NIROP Pomona	Layton Corp.	LADPW
Jul	1990	Site Assessment	B7, Salvage Yard, B39	Jacobs Engineering	Navy Clean Program
Jul	1990	Preliminary Assessment for Waste Disposal	NIROP Pomona Facility	Jacobs Engineering	NEESA
Aug	1991	Preliminary Assessment	B7, Salvage Yard, B39	Jacobs Engineering	SDNFEC
Oct	1991	Remedial Action	Salvage Yard	IT Corporation	RWQCB
Oct	1991	Removal of Contaminated Soil & Cleanup	Garage Area of Building 7	McLaren/Hart	LADPW
Jul	1992	Environmental Site Investigation	Salvage Yard, Metal Chip Area	Law/Crandall, Inc.	RWQCB
Sep	1992	Groundwater Well Installation & Monitoring	Salvage Yard, Metal Chip Area	Law/Crandall, Inc.	RWQCB
May	1993	Soil Remediation, Site Closure Report	Salvage Yard, Metal Chip Area	Tetra Tech, Inc.	RWQCB
Jun	1993	Remediation Report	Building 39, Oil Storage Area	Aman Environmental	RWQCB
Nov	1993	Closure Plan for Pomona Facility	NIROP Pomona Facility	HMSC	HMSC/Navy
Dec	1993	Phase I Environmental Site Assessment	NIROP Pomona Facility	Versar, Inc.	HMSC/Navy
Jan	1994	Part 1 Site Investigation	Building 2	Tetra Tech, Inc.	RWQCB
Mar	1994	Part 2 Site Investigation	Buildings 2,5,7,14A,40,41,42	Tetra Tech, Inc.	RWQCB
Apr	1994	Site Investigation Workplan	Building 2, Machine Shop Area	Tetra Tech, Inc.	DTSC/RWQCB
Apr	1994	PCB/Mercury Spill Investigation & Cleanup	Building 4B, Centrifuge System	DNA, Inc.	HMSC/Navy
Jun	1994	Groundwater Monitoring	B2, B43, B9A, Salvage Yard	Dames & Moore	RWQCB
Jun	1994	Supplemental Environmental Site Assessment	NIROP Pomona Facility	Woodward-Clyde	HMSC/Navy
Jul	1994	Soil Investigation	Dept. 62, Building 2	Dames & Moore	DTSC
Sep	1994	Subsurface Soil Investigation & Assessment	Pomona Recreation Area (PRA)	DNA, Inc.	HMSC/Navy
Nov	1994	Removal Action Workplan	Building 2, Machine Shop Area	Tetra Tech, Inc.	DTSC/RWQCB
Dec	1994	Site Closure Workplan	Waste Water Treatment Plant	Tetra Tech, Inc.	DTSC
Jan	1995	Part 3 Site Investigation	Buildings 2,2A,2B,3B,7,11,12,15,30,35,301	Tetra Tech, Inc.	HMSC/Navy
Apr	1995	Part 4 Site Investigation	Buildings 2, 4, 27, 48, Overpass	DNA, Inc.	HMSC/Navy
Apr	1995	Subsurface Soil Investigation & Tank Closure	Tanks 30B & 30C Building 30	Tetra Tech, Inc.	LADPW
May	1995	Site Closure Report for Removing Contam. Soil	Building 2 & 15A	Tetra Tech, Inc.	DTSC
May	1995	Supplemental Remedial Action Workplan	Buildings 4 and 27	Tetra Tech, Inc.	DTSC
Jul	1995	Remedial Excavation Workplan	Dept. 62, Building 2	Dames & Moore	DTSC
Sep	1995	Site Closure Report for Removing Contam. Soil	Buildings 4 and 27	Tetra Tech, Inc.	DTSC
Oct	1995	Removal Action Workplan for Metal-Contam. Soil	Department 62 of Building 2	Tetra Tech, Inc.	DTSC
Oct.	1995	Removal Action Workplan for Metal-Contam. Soil	Surface Process Area, Dept. 52	Tetra Tech, Inc.	DTSC
Nov	1995	Removal Action Workplan for Contaminated Soil	Waste Water Treatment Plant (WWTP)	Tetra Tech, Inc.	DTSC
Mar	1996	Remove Metal and SVOC-Contaminated Soil	WWTP Areas, B48, Plasma Desmear and Dept.62	Tetra Tech, Inc.	DTSC
Sep	1996	Part 5 Additional Subsurface Soil Investigation	Buildings 2, 2B, 3B, 4A, 4B, 7, 43, 30, 301	Tetra Tech, Inc.	DTSC
Nov	1996	Radiation Survey of Building 30/14A	Building 14A and 30	JMD Associates	DTSC
Dec	1996	Additional Thallium Investigation at Building 9	Building 9 Yard	Tetra Tech, Inc.	DTSC